

REMARKS

Claims 1-22 are pending. Claims 15-22 are allowed. By this Response, claims 1, 2, 4, 8, 9, 12, 13 and 14 are amended. Reconsideration and allowance based on the above-amendments and following remarks are respectfully requested.

Applicant appreciates the indication of claims 6 and 7 as containing allowable subject matter.

The Office Action rejects claims 1, 2, 4, 5 and 12 under 35 U.S.C. §102(b) as being anticipated by Lu (US 5,852,672); claims 3, 8, 10 and 11 under 35 U.S.C. §103(a) as being unpatentable over Lu and Bacs, Jr., et al. (US 6,324,347); claim 9 under 35 U.S.C. §103(a) as being unpatentable over Lu, Bacs, Jr. and Lo (US 6,269,223); claim 13 under 35 U.S.C. §103(a) as being unpatentable over Lu; and claim 14 under 35 U.S.C. §103(a) as being unpatentable over Lu and Moreton, et al. (US 5,835,133). These rejections are respectfully traversed.

The Office Action alleges that Lu teaches each of the claimed features of independent claims 1 and 4. Applicant respectfully disagrees. Claims 1 and 4 each recite a single capturing section including a single lens section and a single shutter operable to perform image capturing for a subject at a plurality of viewpoints; and a controller operable to control the single capturing section to perform said image capturing at different timings as said plurality

viewpoints, wherein the controller controls the single capturing section to perform image capturing for the subject two or more times at the at least one of said plurality of viewpoints.

Claim 4 further recites, *inter alia*, a depth calculating unit operable to a calculated depth of a particular region of the subject in relation to the single capturing section based on two or more images obtained by the image capturing performed for the subject two or more times at one viewpoint and another image obtained by the image capturing performed at another viewpoint different from the one viewpoint.

In embodiments of the present invention, a single lens system (a single capturing lens and a single shutter) is used to capture a plurality of images at various viewpoints. Because the prior art requires multiple capturing lenses and shutters, embodiments of the present invention have an advantage of using less equipment and therefore less time cost and energy to operate. Along with a single capturing section, embodiments of the present invention include a depth calculating unit which calculates the depth of a particular region of a subject in relation to the single capturing section based on the images obtained by the single capturing sections from the various viewpoints.

In contrast, Lu teaches a three-dimensional motion camera system that in order to obtain a three-dimensional effect uses three stereo imaging units 14, 16 and 18, as illustrated in Fig. 1 and described in column 5, lines 30-42.

Within each one of these stereo imaging units two unique camera systems (i.e., image capturing sections) 42 and 44 are separated from each other along a base line 46 with a projection system 48 placed between the two cameras. See Fig. 2, column 5, lines 44 through 55. In the system of Lu, it is necessary to utilize multiple stereo imaging units 14, 16 and 18 to obtain three-dimensional motion effect. Further, within each stereo imaging unit two separate camera systems 42 and 44 are necessarily used in order to capture stereo images in the time series as represented in Fig. 6 and described on column 7, lines 12-25 of Lu.

The Office Action alleges that the stereo imaging unit 40 is the same as applicant's claimed single capturing section (single capturing section including a single lense and single shutter, etc). Applicant respectfully disagrees. In the present invention, the single capturing section contains all image capturing devices within one self contained unit, including a single lens and a single shutter. Further, the single capturing section is able to capture images at a plurality of viewpoints without the need for other image capturing sections. In contrast, the stereo imaging unit 40 of Lu necessarily utilizes two separate cameras (42, 44) and thus multiple lenses and shutters for capturing images. These two cameras are not fully contained within a single unit and are distinct camera units and thus distinct capturing sections. Therefore, applicant respectfully submits that the individual cameras, since each of the cameras in

Lu's system are individual units, are a single capturing section and thus each stereo imaging unit in Lu's system utilizes two image capturing sections.

Further, the Office Action alleges that Lu teaches calculating distances from two or images obtained from one viewpoint and another image at another viewpoint from the image calculating section. The Office Action alleges that the time series stereo images as described in column 7, lines 18-21 and the obtaining of a Z value of the time series three dimensional surfaces as described on column 13, lines 21 through 23 provide the depth information. Applicant respectfully disagrees.

Applicant respectfully submits that the time series stereo images are obtained from two separate image capturing sections (42, 44). Further, the images are merely used to obtain a three-dimensional surface of an object. The three dimensional object is defined by X Y and Z coordinates. Within Lu's system, the projector system 48 provides a grid between the two cameras in the stereo imaging unit. This grid allows for applying X Y & Z coordinates to obtain the three-dimensional surfaces. The Z value discussed in column 13 is merely a value obtained on this grid to obtain depth of the image itself to form the three dimensional surface. A depth of the particular region of a subject in relation to the image capturing section is not obtained.

Therefore, Lu fails to teach the above mentioned claimed features recited in independent claims 1 and 4. Thus, a rejection under 35 U.S.C. §102 cannot

be maintained. Further, Bacs, Lo and Moreton fail to make up for Lu's deficiencies. Thus, dependent claims 2, 3 and 5-14 are likewise distinguishable over the cited art. Accordingly, reconsideration and withdrawal of the rejections are respectfully requested.

### Conclusion

For at least these reasons, it is respectfully submitted that claims 1-14 are distinguishable over the cited art. Favorable consideration and prompt allowance are earnestly solicited.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Chad J. Billings (Reg. No. 48,917) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), Applicant respectfully petitions for a one (1) month extension of time for filing a reply in connection with the present application, and the required fee of \$120.00 is attached hereto.

Appl. No. 09/934,573

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASCH & BIRCH, LLP

By

  
Michael R. Cammarata

Reg. No.: 39,491

MRC/CJB:cb  
3562-0121P

P.O. Box 747  
Falls Church, VA 22040-0747  
(703) 205-8000